

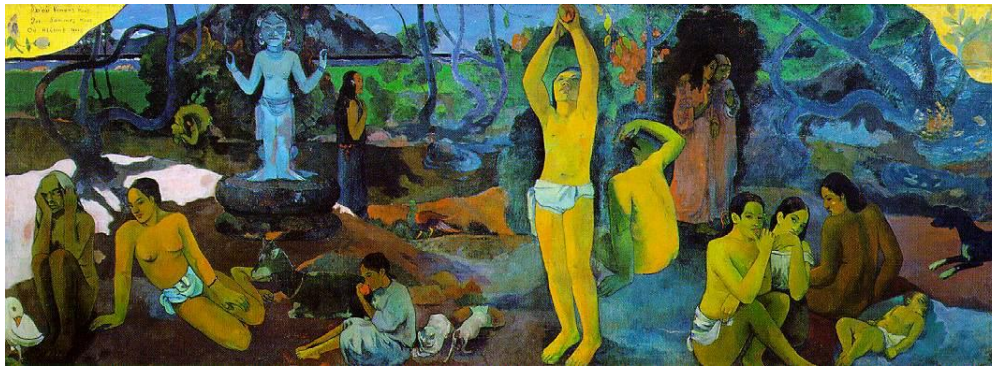


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Transformation of the ACMA Spectrum Monitoring Framework

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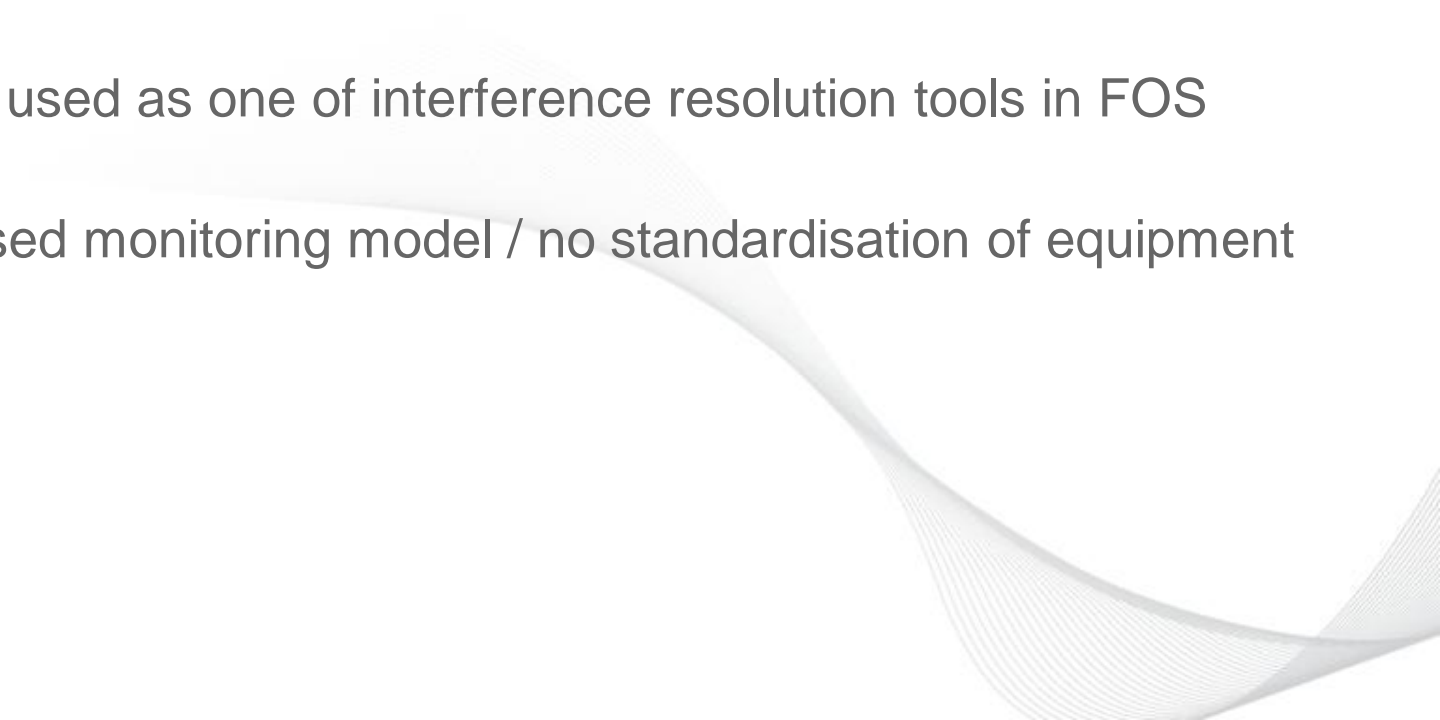
Where do we come from? What are we? Where are we going?



Where did we come from?



Where did we come from?

- MMS/IMMS established about 3 years ago
 - Regional Structure of Field Operations Section
 - Monitoring used as one of interference resolution tools in FOS
 - Decentralised monitoring model / no standardisation of equipment
- 

What are we?

Basic measurement requirements:

- direction finding,
- frequency measurements,
- bandwidth measurements,
- modulation measurements,
- spectrum occupancy measurements,
- field-strength.

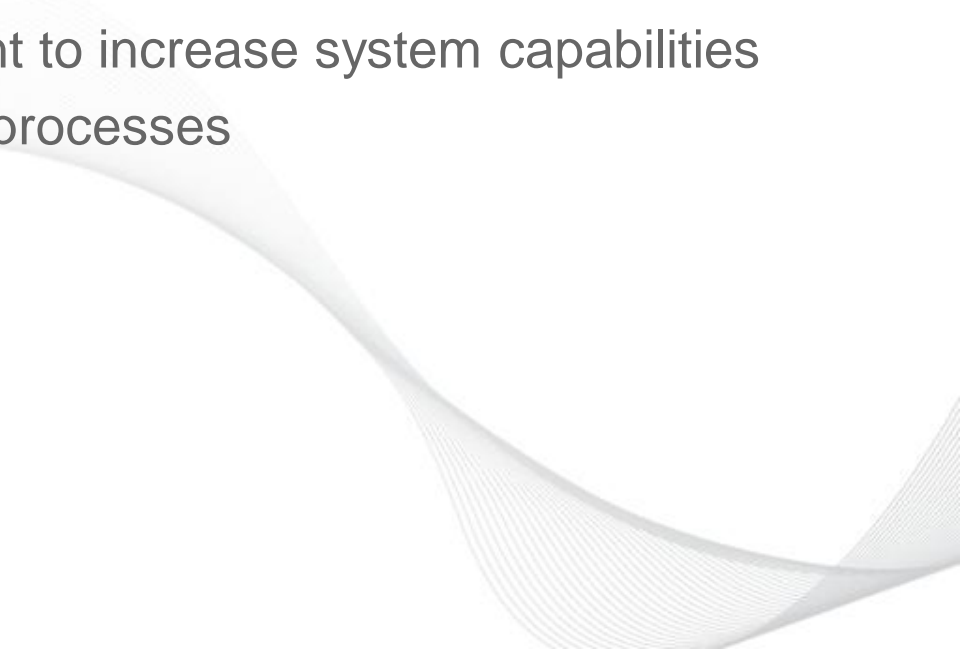


Where are we now?



Where are we now?

Centralisation and standardisation of the monitoring network

- Development of the 'Monitoring Cloud Model'
 - Consolidations of different technologies to achieve connectivity : fibre, ADSL, 3G, LTE etc.
 - Purchase of new equipment to increase system capabilities
 - Automating measurement processes
 - Virtual servers
 - Audio streaming
- 

Where are we now?

Using monitoring for the whole of the ACMA

- Direction finding and spectrum monitoring (FOS)
- Spectrum occupancy
- Marine Radio Survey (Melbourne and Adelaide)
- satellite recording (Al Manar)
- Time Series Analysis
- Content recording (broadcasting)

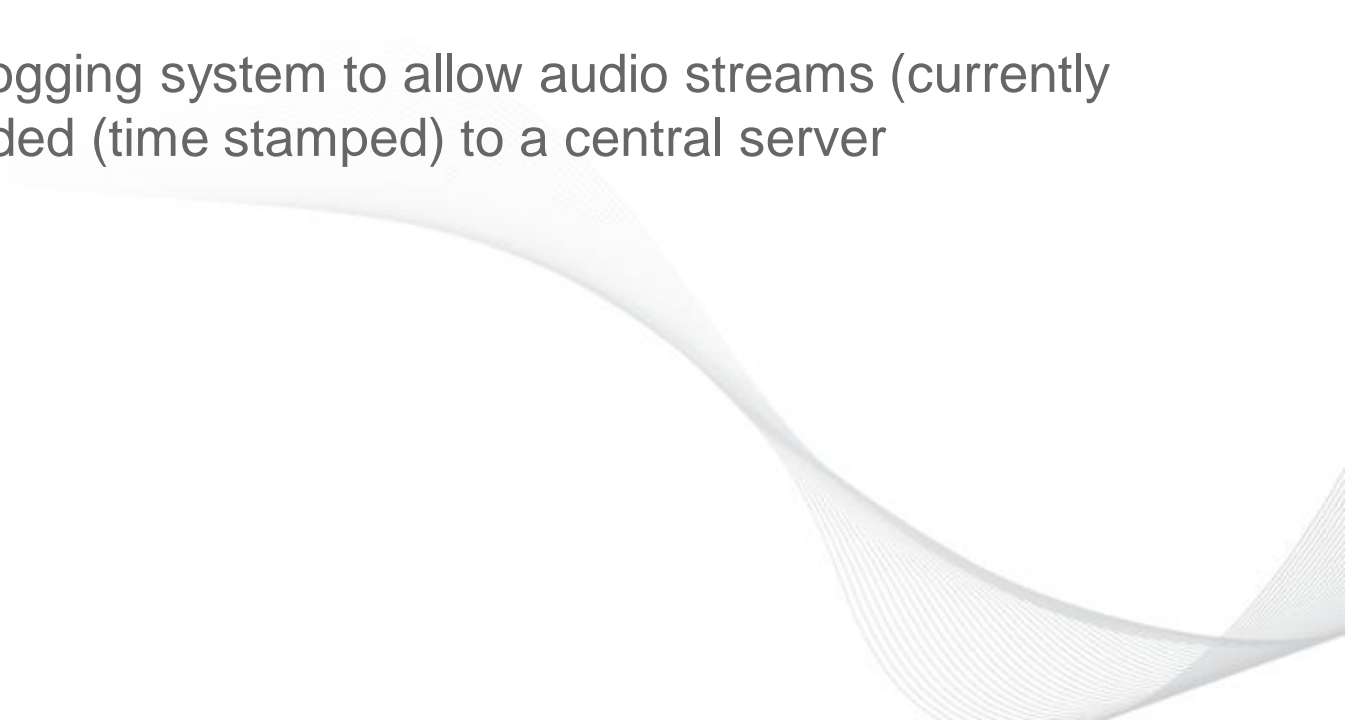


What is our goal?

Creation of an integrated and automated remotely controlled cutting-edge spectrum monitoring system.



Where are we heading?

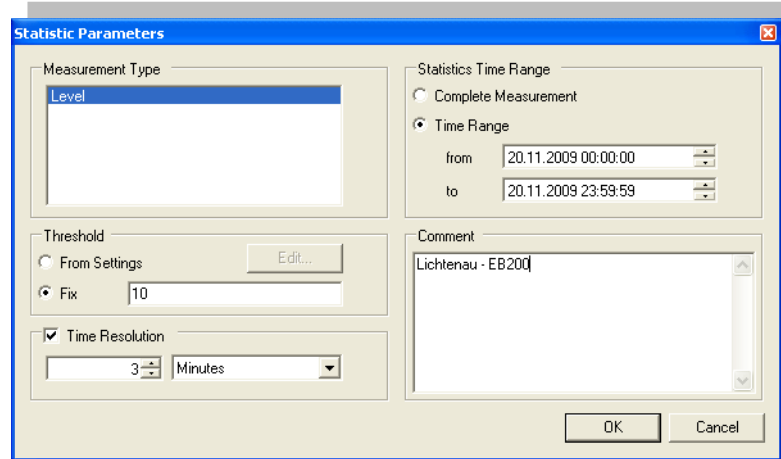
- Transportable Monitoring Trial (CHOGM 2011)
 - UMRCS replacement
 - Central audio logging system to allow audio streams (currently 32) to be recorded (time stamped) to a central server
- 

Where are we heading?



MONITORplus: RAW Measurements Calculation of Occupancy Statistics

- > Threshold can be used from global settings (frequency dependent) or specified fix (frequency independent)
- > Fast occupancy calculation on very big level raw data measurements



Frequency	Threshold	Overall Occupancy [%]	Minimum	Minimum Timestamp	Maximum	Maximum Timestamp	Average
405.000000 MHz	25	0.00	16.40	20.11.2009 07:53	20.50	20.11.2009 00:35	18.53
405.012500 MHz	25	0.00	16.70	20.11.2009 19:34	20.20	20.11.2009 10:45	18.54
405.025000 MHz	25	0.00	16.40	20.11.2009 13:51	20.50	20.11.2009 21:21	18.53
405.037500 MHz	25	0.00	16.10	20.11.2009 02:31	20.50	20.11.2009 19:30	18.53
405.050000 MHz	25	0.00	16.60	20.11.2009 06:26	20.30	20.11.2009 10:02	18.53
405.062500 MHz	25	0.00	16.40	20.11.2009 07:08	20.70	20.11.2009 18:55	18.54
405.075000 MHz	25	0.00	16.50	20.11.2009 11:43	20.20	20.11.2009 00:15	18.53
405.087500 MHz	25	0.00	16.50	20.11.2009 22:14	20.30	20.11.2009 22:06	18.53
405.100000 MHz	25	0.00	16.50	20.11.2009 11:46	23.70	20.11.2009 01:20	19.31
405.112500 MHz	25	0.00	16.30	20.11.2009 05:07	20.30	20.11.2009 16:03	18.53
405.125000 MHz	25	0.00	16.30	20.11.2009 02:55	20.80	20.11.2009 12:42	18.53
405.137500 MHz	25	0.00	16.60	20.11.2009 05:25	20.90	20.11.2009 12:42	18.52
405.150000 MHz	25	0.00	16.80	20.11.2009 03:38	20.60	20.11.2009 12:42	18.53
405.162500 MHz	25	0.00	16.50	20.11.2009 21:36	20.30	20.11.2009 12:42	18.54
405.175000 MHz	25	0.00	16.70	20.11.2009 04:28	20.60	20.11.2009 12:42	18.54
405.187500 MHz	25	0.00	16.60	20.11.2009 05:00	21.40	20.11.2009 12:42	18.54
405.200000 MHz	25	0.00	16.60	20.11.2009 04:16	20.60	20.11.2009 13:02	18.55
405.212500 MHz	25	0.00	16.60	20.11.2009 07:25	21.10	20.11.2009 13:15	18.55
405.225000 MHz	25	0.00	16.60	20.11.2009 23:42	20.20	20.11.2009 03:59	18.54
405.237500 MHz	25	0.00	16.20	20.11.2009 03:29	20.20	20.11.2009 13:17	18.54
405.250000 MHz	25	0.00	16.30	20.11.2009 19:29	20.50	20.11.2009 07:40	18.54
405.262500 MHz	25	0.00	16.30	20.11.2009 22:14	20.70	20.11.2009 13:19	18.55
405.275000 MHz	25	0.00	16.50	20.11.2009 17:27	20.50	20.11.2009 13:19	18.53

Number of Items: 240/240

